

Hospital Survey on Patient Safety Culture: 2007 Comparative Database Report

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Summary

In response to requests from hospitals interested in comparing their results against those from other hospitals on the *Hospital Survey on Patient Safety Culture*, the Agency for Healthcare Research and Quality (AHRQ) established the *Hospital Survey on Patient Safety Culture Comparative Database*. In spring and summer 2006, U.S. hospitals that administered the AHRQ patient safety culture survey voluntarily submitted their data for inclusion in this new database. The 2007 database consists of data from 382 participating hospitals and 108,621 hospital staff respondents who completed the survey. This report was developed as a tool for:

- **Comparison.** To allow hospitals to compare their patient safety culture survey results against other hospitals.
- **Assessment and learning.** To provide data to hospitals to facilitate internal assessment and learning in the patient safety improvement process.
- **Supplemental information.** To provide supplemental information to help hospitals identify their strengths and areas with potential for improvement in patient safety culture.

Development of the Survey

The *Hospital Survey on Patient Safety Culture* was pilot tested, revised, and then released in November 2004. It is designed to assess hospital staff opinions about patient safety issues, medical error, and event reporting; it includes 42 items that measure 12 areas or composites of patient safety culture:

1. Communication openness
2. Feedback and communication about error
3. Frequency of events reported
4. Handoffs and transitions
5. Management support for patient safety
6. Nonpunitive response to error
7. Organizational learning/continuous improvement
8. Overall perceptions of patient safety
9. Staffing
10. Supervisor/manager expectations and actions promoting safety
11. Teamwork across units
12. Teamwork within units

Survey Administration Statistics

- The average hospital response rate was 56 percent, with an average of 284 completed surveys per hospital.
- Most hospitals (56 percent) administered paper surveys, which resulted in higher response rates (62 percent response) than Web (43 percent response) or mixed-mode surveys (53 percent response).
- Most hospitals (79 percent) administered the survey to all staff or a sample of all staff from all hospital departments.

Characteristics of Participating Hospitals

- Overall, the characteristics of the 382 database hospitals are fairly consistent with the distribution of U.S. hospitals registered with the American Hospital Association (AHA).
- Participating hospitals represent a range of bed sizes (numbers of patient beds) and geographic regions.
- Most hospitals are nonteaching (76 percent) and nongovernment owned (voluntary/nonprofit or proprietary/investor-owned) (72 percent).

Characteristics of Respondents

- There are 108,621 hospital staff respondents from 382 hospitals.
- Over one-third of respondents (34 percent) selected “Other” as their work area, followed by “Surgery” (10 percent), “Many different hospital units/No specific unit” (9 percent), and “Medicine” (9 percent).
- Over one-third of respondents (36 percent) selected “Registered Nurse” or “Licensed Vocational Nurse/Licensed Practical Nurse (LVN/LPN)” as their staff position, followed by “Other” (23 percent), and “Technician (e.g., EKG, Lab, Radiology)” (11 percent).
- Most respondents (76 percent) indicated they had direct interaction with patients.

Areas of Strength for Most Hospitals

Teamwork within units. This score—the extent to which staff support one another, treat each other with respect, and work together as a team—was the patient safety culture composite with the highest average percent positive response (78 percent), indicating this is an area of strength for most hospitals. The survey item with the highest average percent positive response (85 percent) was: “When a lot of work needs to be done quickly, we work together as a team to get the work done.”

Patient safety grade. On average, the majority of respondents within hospitals (70 percent) gave their work area or unit a grade of either “A-Excellent” (22 percent) or “B-Very Good” (48 percent) on patient safety. However, there was a wide range of response in patient safety grades, from at least one hospital where none of the respondents (0 percent) provided their unit with a patient safety grade of “A-Excellent,” to a hospital where 63 percent did.

Areas with Potential for Improvement for Most Hospitals

Nonpunitive response to error. This score—the extent to which staff feel that their mistakes and event reports are not held against them and that mistakes are not kept in their personnel file—was the patient safety culture composite with the lowest average percent positive response (43 percent), indicating this is an area with potential for improvement for most hospitals. The survey item with the lowest average percent positive response (35 percent) was: “Staff worry that mistakes they make are kept in their personnel file,” (an average of only 35 percent strongly disagreed or disagreed with this item).

Number of events reported. On average, the majority of respondents within hospitals (53 percent) reported no events in their hospital over the past 12 months. It is likely that this percentage represents underreporting of events, and was identified as an area for improvement for most hospitals

because potential patient safety problems may not be recognized or identified, and therefore may not be addressed. However, there was a wide range of response in the number of events reported, from a hospital where 96 percent of respondents had not reported a single event over the past 12 months, to a hospital where only 5 percent had not reported an event.

Results by Hospital Characteristics

Results on the survey's patient safety culture composites and items by hospital characteristics (bed size, teaching status, ownership and control, region) are highlighted. A 5 percent difference in percent positive scores was used as a rule of thumb to identify meaningful differences in scores.

Bed Size

- Smaller hospitals (49 beds or fewer) had the highest average positive response on all 12 patient safety culture composites.
- The largest difference across hospitals by bed size was on *Handoffs & Transitions* where the smallest hospitals (6-24 beds) scored 20 percent higher than the largest hospitals (400+ beds—56 percent positive compared to 36 percent positive).

Teaching Status, and Ownership and Control

- The largest difference across hospitals based on teaching status was on *Teamwork Across Units*, where nonteaching hospitals were 5 percent more positive than teaching hospitals (58 percent positive compared to 53 percent positive).
- Government-owned hospitals were more positive than nongovernment owned hospitals on *Staffing* (6 percent more positive), *Handoffs & Transitions* (6 percent more positive), and *Teamwork Across Units* (5 percent more positive).

Region*

- East South Central, West North Central, and West South Central hospitals scored highest across the 12 patient safety culture composites; Mid-Atlantic/New England, East North Central, and Pacific hospitals scored lowest.
- The largest difference by region was on *Staffing* where West North Central hospitals were 15 percent more positive than Mid Atlantic/New England hospitals (61 percent positive compared to 46 percent positive).

Patient Safety Grade

- Large hospitals (400+ beds) and hospitals in the Mountain region scored lowest on the percent of respondents who gave their work area/unit a patient safety grade of “Excellent” or “Very good” (64 percent for 400+ beds and 60 percent for the Mountain region).

Number of Events Reported

* NOTE: States are categorized into AHA-defined regions as follows:
Mid Atlantic/New England: NY, NJ, PA, ME, NH, VT, MA, RI, CT
South Atlantic: DE, MD, DC, VA, WV, NC, SC, GA, FL
East North Central: OH, IN, IL, MI, WI
East South Central: KY, TN, AL, MS

West North Central: MN, IA, MO, ND, SD, NE, KS
West South Central: AR, LA, OK, TX
Mountain: MT, ID, WY, CO, NM, AZ, UT, NV
Pacific: WA, OR, CA, AK, HI

- Hospitals in the Pacific region had the highest percent of respondents who reported one or more events in the past year (54 percent); the lowest percent of respondents reporting events was 42 percent in the East South Central and West South Central regions.

Results by Respondent Characteristics

Results on the survey's patient safety culture composites and items by respondent characteristics (work area/unit, staff position, interaction with patients) are highlighted. A 5 percent difference in percent positive scores was used as a rule of thumb to identify meaningful differences in scores.

Respondent Work Area/Unit

- Respondents in *Rehabilitation* had the highest average positive response on 9 of the 12 patient safety culture composites.
- The largest differences (23 percent) by work area/unit were on *Overall Perceptions of Patient Safety* (*Rehabilitation* was 76 percent positive; *Medicine* was 53 percent positive) and *Nonpunitive Response to Error* (*Rehabilitation* was 59 percent positive; *Emergency* was 36 percent positive).

Respondent Staff Position

- Respondents in *Administration/Management* had the highest average positive response on 11 of the 12 patient safety culture composites.
- The largest difference (27 percent) by staff position was on *Nonpunitive Response to Error*; *Administration/Management* was 60 percent positive and *Patient Care Assistants Aides/Care Partners* were 33 percent positive.

Respondent Interaction With Patients

- Respondents *with* direct patient interaction were 8 percent more positive on *Handoffs & Transitions* compared to those *without* direct patient interaction (46 percent positive compared to 38 percent positive).
- Respondents *without* direct patient interaction were 7 percent more positive about *Management Support for Patient Safety* than those *with* direct patient interaction (75 percent positive compared with 68 percent positive).

Patient Safety Grade

- *Rehabilitation* had the highest percent of respondents who gave their work area/unit a patient safety grade of "Excellent" or "Very good" (81 percent); *Medicine* had the lowest percent (58 percent).
- *Administration/Management* had the highest percent of respondents who gave their work area/unit a patient safety grade of "Excellent" or "Very good" (79 percent); *Registered Nurse/LVN/LPN* had the lowest percent (64 percent).

Number of Events Reported

- *ICU (any type)* had the highest percent of respondents reporting one or more events in the past year (69 percent); the lowest percent reporting events was *Anesthesiology* (41 percent).

- *Pharmacists* had the highest percent of respondents reporting one or more events in the past year (76 percent); the lowest percent reporting events were *Unit Assistants/Clerks/Secretaries* (21 percent).
- More respondents *with* direct patient interaction reported one or more events in the past year (52 percent) compared to those *without* direct patient interaction (32 percent).

Action Planning for Improvement

The delivery of survey results is not the *end point* in the survey process, it is just the *beginning*. It is often the case that the perceived failure of surveys to create lasting change is actually due to faulty or nonexistent action planning or survey follow-up. Seven steps of action planning are provided to give hospitals guidance on next steps to take to turn their survey results into actual patient safety culture improvement.

1. Understand your survey results
2. Communicate and discuss the survey results
3. Develop focused action plans
4. Communicate action plans and deliverables
5. Implement action plans
6. Track progress and evaluate impact
7. Share what works

Purpose and Use of This Report

In response to requests from hospitals interested in comparing their results against other hospitals on the *Hospital Survey on Patient Safety Culture*, the Agency for Healthcare Research and Quality (AHRQ) established the *Hospital Survey on Patient Safety Culture Comparative Database*. In spring and summer 2006, U.S. hospitals that administered the AHRQ patient safety culture survey voluntarily submitted their data for inclusion in this new database. The 2007 database consists of data from 382 participating hospitals and 108,621 hospital staff respondents who completed the survey.

This report was developed as a tool for:

- **Comparison**—To allow hospitals to compare their patient safety culture survey results against other hospitals in their ongoing efforts to establish, improve and maintain a culture of patient safety in their institutions.
- **Assessment and Learning**—To provide data to hospitals to facilitate internal assessment and learning in the patient safety improvement process, rather than as a basis for determining punitive actions or for external judgment of hospital performance.
- **Supplemental Information**—To provide supplemental information to help hospitals identify areas of strength and areas with potential for improvement in patient safety culture.

The main body of this report, Part I: Comparative Database Report, presents statistics (averages, standard deviations, minimum and maximum scores, and percentiles) on the patient safety culture areas or composites assessed in the survey, as well as the survey's individual items. In addition, Part II of the report presents averages for breakouts of the data by hospital and respondent characteristics.

Following this narrative report is Part II, which consists of Appendixes A and B:

Appendix A—Results by Hospital Characteristics

- Bed size
- Teaching status
- Ownership and control
- Geographic region

Appendix B—Results by Respondent Characteristics

- Work area/unit
- Staff position
- Interaction with patients

Part I: Comparative Database Report

Chapter 1. Introduction

Patient safety is a critical component of health care quality. As health care organizations continually strive to improve, there is a growing recognition of the importance of establishing a culture of patient safety. Achieving a culture of patient safety requires an understanding of the values, beliefs, and norms about what is important in an organization and what attitudes and behaviors related to patient safety are supported, rewarded and expected.

Development of the Survey

Recognizing the need for a measurement tool to assess the culture of patient safety in health care organizations, the Medical Errors Workgroup of the Quality Interagency Coordination Task Force (QuIC) sponsored the development of a hospital survey focusing on patient safety culture. Funded by the Agency for Healthcare Research and Quality (AHRQ), the *Hospital Survey on Patient Safety Culture* was developed under contract by Westat, a private research organization. To develop this patient safety culture assessment tool, a review of research pertaining to safety, patient safety, error and accidents, and error reporting was conducted, as well as an examination of existing published and unpublished safety culture assessment tools. In addition, hospital employees and administrators were interviewed to identify key patient safety and error reporting issues.

The survey was pilot tested, revised, and then released by AHRQ in November 2004. It was designed to assess hospital staff opinions about patient safety issues, medical error, and event reporting and includes 42 items that measure 12 areas or composites of patient safety culture. Each of the 12 patient safety culture composites is listed and defined in Table 1-1.

Table 1-1. Patient Safety Culture Composites and Definitions

Patient Safety Culture Composite	Definition: <i>The extent to which....</i>
1. Communication openness	Staff freely speak up if they see something that may negatively affect a patient, and feel free to question those with more authority
2. Feedback & communication about error	Staff are informed about errors that happen, given feedback about changes implemented, and discuss ways to prevent errors
3. Frequency of events reported	Mistakes of the following types are reported: 1) mistakes caught and corrected before affecting the patient, 2) mistakes with no potential to harm the patient, and 3) mistakes that could harm the patient, but do not
4. Handoffs & transitions	Important patient care information is transferred across hospital units and during shift changes
5. Management support for patient safety	Hospital management provides a work climate that promotes patient safety and shows that patient safety is a top priority
6. Nonpunitive response to error	Staff feel that their mistakes and event reports are not held against them, and that mistakes are not kept in their personnel file

Table 1-1. Patient Safety Culture Composites and Definitions, continued

Patient Safety Culture Composite	Definition: <i>The extent to which....</i>
7. Organizational learning–Continuous improvement	There is a learning culture in which mistakes lead to positive changes and changes are evaluated for effectiveness
8. Overall perceptions of patient safety	Procedures and systems are good at preventing errors and there is a lack of patient safety problems
9. Staffing	There are enough staff to handle the workload and work hours are appropriate to provide the best care for patients
10. Supervisor/manager expectations & actions promoting safety	Supervisors/managers consider staff suggestions for improving patient safety, praise staff for following patient safety procedures, and do not overlook patient safety problems
11. Teamwork across units	Hospital units cooperate and coordinate with one another to provide the best care for patients
12. Teamwork within units	Staff support one another, treat each other with respect, and work together as a team

The survey also includes two questions that ask respondents to provide an overall grade on patient safety for their work area/unit and to indicate the number of events they have reported over the past 12 months. In addition, respondents are asked to provide limited background demographic information about themselves (their work area/unit, staff position, whether they have direct interaction with patients, etc). The survey’s toolkit materials are available from the AHRQ Web site (<http://www.ahrq.gov/qual/hospculture>) and include the survey, a survey administration user’s guide, a survey feedback report template, an article about safety culture assessment, and several conference call presentations providing additional information about the survey. The toolkit provides hospitals with the basic knowledge and tools needed to conduct a patient safety culture assessment and ideas regarding how to use the data.

The 2007 Comparative Database and Report

Since its release, the *Hospital Survey on Patient Safety Culture* has been widely implemented across the United States. Hospitals administering the survey have expressed interest in comparing their survey results against other hospitals as an additional source of information to help them identify areas of strength and areas for improvement in patient safety culture. In response to these requests, AHRQ funded the 2007 *Hospital Survey on Patient Safety Culture Comparative Database*.

A second year of the database will be funded along with a second report by 2008. Hospitals interested in submitting to the Year 2 database should go to the AHRQ Web site for more information (<http://www.ahrq.gov/qual/hospculture>).

Data Limitations

The survey results presented in this report represent the largest compilation of data from the *Hospital Survey on Patient Safety Culture* currently available, and therefore provide a useful reference for comparison. However, there are several limitations to these data that should be kept in mind.

First, the 382 hospitals that submitted data to the database are not a statistically selected sample of all U.S. hospitals since only hospitals that administered the survey on their own and were willing to submit their data for inclusion in the database are represented. However, the characteristics of the database hospitals are fairly consistent with the distribution of U.S. hospitals registered with the American Hospital Association (AHA) and are described further in Chapter 3.

Second, hospitals that administered the survey were not required to undergo any training and administered it in different ways. Some hospitals used a paper-only survey, others used Web-only, and others used a combination of these two methods to collect the data. It is possible that these different modes could lead to differences in survey responses; further research is needed to determine if there are mode effects that affect the results. In addition, some hospitals conducted a census, surveying all hospital staff, while others administered the survey to a sample of staff. In cases in which a sample was drawn, no data were obtained to determine the methodology used to draw the sample. Survey administration statistics that were obtained about the database hospitals, such as survey administration modes and response rates, are provided in Chapter 2.

Finally, while the data submitted by hospitals have been cleaned for out-of-range values (e.g., invalid response values due to data entry errors) and blank records (where responses to all survey items were missing), as well as some logic checks, we have otherwise presented the data as submitted. We have not made any additional attempts to verify or audit the accuracy of the data submitted by the hospitals.

Chapter 2. Survey Administration Statistics

This chapter presents descriptive information on the hospitals contributing to the database, regarding how they conducted survey administration.

Highlights

- The 2007 database consists of data from 108,621 hospital staff respondents across 382 participating hospitals.
- The average hospital response rate was 56 percent, with an average of 284 completed surveys per hospital.
- Most hospitals (56 percent) administered paper surveys, which resulted in higher response rates (62 percent response) compared to Web (43 percent response) or mixed mode surveys (53 percent response).
- Most hospitals (79 percent) administered the survey to all staff or a sample of all staff from all hospital departments.

The 2007 database consists of survey data from 382 hospitals with a total of 108,621 hospital staff respondents. Participating hospitals administered the *Hospital Survey on Patient Safety Culture* to their hospital staff between October 2004 and July 2006, and voluntarily submitted their data for inclusion into the database.

An average of 284 completed surveys were submitted per hospital (range: 11 to 3,684), with an average hospital response rate of 56 percent (range: 6 percent to 100 percent) (see Table 2-1).

Table 2-1. Overall Statistics for Participating Hospitals

Total number of participating hospitals	382
Total number of individual survey respondents	108,621
Average number of completed surveys per hospital (range: 11 to 3,684 surveys)	284
Average hospital response rate (range: 6% to 100%)	56%

Most hospitals administered only paper surveys (56 percent), followed by Web (25 percent) and mixed mode administrations involving both paper and Web surveys (19 percent) (see Table 2-2).

Table 2-2. Survey Administration Statistics

Survey Administration Mode	Database Hospitals		Database Respondents	
	Number	Percent	Number	Percent
Paper only	215	56%	45,977	42%
Web only	95	25%	29,106	27%
Both paper and Web	72	19%	33,538	31%
TOTAL	382	100%	108,621	100%

As shown in Table 2-3, paper survey administrations received a considerably higher average response rate (62 percent) than Web (43 percent) or mixed mode administrations (53 percent). It is therefore still recommended overall that hospitals conduct the *Hospital Survey on Patient Safety Culture* as a paper survey, but each hospital should take into consideration its own prior experience with survey modes and response rates when determining which mode is best.

Table 2-3. Average Hospital Response Rate by Mode

Survey Administration Mode	Average Hospital Response Rate
Paper only	62%
Web only	43%
Both Web and paper	53%

Most hospitals (79 percent, or 302) administered the survey to a census of all hospital staff, or a sample of staff, from all hospital departments; fewer hospitals (21 percent, or 80) administered the survey to a subset of selected staff and/or departments (see Table 2-4). Ten hospitals did not administer the entire survey; they excluded one or more of the nondemographic survey items. Those 10 hospitals were excluded from composite calculations if they omitted one or more of the items within a particular composite, but were included in item-level calculations for those items they retained.

Table 2-4. Types of Staff or Departments Surveyed

Types of Staff or Departments Surveyed	Database Hospitals		Database Respondents	
	Number	Percent	Number	Percent
All staff, or a sample of all staff, from all departments	302	79%	90,113	83%
Selected staff only	55	14%	13,258	12%
Selected departments only	7	2%	1,339	1%
Selected staff <u>and</u> selected departments	18	5%	3,911	4%
TOTAL	382	100%	108,621	100%

Chapter 3. Characteristics of Participating Hospitals

As background for understanding the survey results, this chapter presents information about the distribution of database hospitals by bed size (number of patient beds), teaching status, ownership and control, and geographic region. Although the 382 hospitals that voluntarily submitted data to the database do not constitute a statistically selected sample, the characteristics of these hospitals are fairly consistent with the distribution of U.S. hospitals registered with the American Hospital Association (AHA). The characteristics of database hospitals by AHA-defined categories of bed size, teaching status, ownership and control, and region are presented in the following tables.¹ Data are presented which describe the database hospitals and the survey respondents from these hospitals, as well as the distribution of U.S. AHA-registered hospitals included in the 2004 AHA Annual Survey of Hospitals.²

Highlights

- Overall, the characteristics of the 382 database hospitals are fairly consistent with the distribution of U.S. hospitals registered with the American Hospital Association (AHA).
- Participating hospitals represent a range of bed sizes and geographic regions.
- Most hospitals are nonteaching (76 percent) and nongovernment owned (voluntary/nonprofit or proprietary/investor-owned) (72 percent).

Bed Size

Table 3-1 shows the distribution of database hospitals and respondents by hospital bed size. Overall, the distribution of database hospitals by bed size is similar to the distribution of AHA-registered U.S. hospitals. The bed size category of 25 to 49 beds has the largest number of hospitals (97 database hospitals or 25 percent). Equivalent to the distribution of AHA-registered U.S. hospitals, 73 percent of the hospitals in the database have fewer than 200 beds.

It is important to note that while there are more smaller hospitals in the database, they account for fewer respondents than larger hospitals. Hospitals with fewer than 200 beds account for only 34 percent of all database respondents (37,032 respondents), whereas hospitals with 200 or more beds account for almost twice as many respondents (66 percent, or 71,589 respondents).

¹ To ensure hospital confidentiality, a rule was established requiring at least 20 hospitals to be in a particular breakout category before data would be displayed by that category. Therefore, some of the standard AHA categories have been combined. In addition, column percent totals in the tables may not sum to exactly 100 percent due to rounding of decimals.

² Data for AHA-registered hospitals were obtained from the 2004 AHA Annual Survey of Hospitals Database, © 2007 Health Forum, LLC, an affiliate of the American Hospital Association. Hospitals not registered with the AHA were asked to provide information on their hospital's characteristics such as bed size, teaching status, etc.

**Table 3-1. Distribution of Database Hospitals and Respondents by Bed Size
(Compared to AHA-registered U.S. Hospitals)**

Bed Size	AHA-registered U.S. Hospitals		Database Hospitals		Database Respondents	
	Number	Percent	Number	Percent	Number	Percent
6-24 beds	498	8%	41	11%	2,657	2%
25-49 beds	1,185	20%	97	25%	8,764	8%
50-99 beds	1,331	22%	79	21%	10,825	10%
100-199 beds	1,356	23%	61	16%	14,786	14%
200-299 beds	721	12%	45	12%	21,298	20%
300-399 beds	393	7%	29	8%	17,476	16%
400 or more beds	524	9%	30	8%	32,815	30%
TOTAL	6,008	100%	382	100%	108,621	100%

Teaching Status

As shown in Table 3-2, most database hospitals were nonteaching (76 percent), which compares closely to the distribution of AHA-registered U.S. hospitals.

**Table 3-2. Distribution of Database Hospitals and Respondents by Teaching Status
(Compared to AHA-registered U.S. Hospitals)**

Teaching Status	AHA-registered U.S. Hospitals		Database Hospitals		Database Respondents	
	Number	Percent	Number	Percent	Number	Percent
Teaching	1,345	22%	92	24%	44,067	41%
Nonteaching	4,663	78%	290	76%	64,554	59%
TOTAL	6,008	100%	382	100%	108,621	100%

Ownership and Control

The distribution of database hospitals and respondents by government versus nongovernment ownership and control is shown in Table 3-3. Most database hospitals are nongovernment owned and controlled (i.e., voluntary/nonprofit or proprietary/investor-owned). The distribution of database hospitals matches the distribution of AHA-registered U.S. hospitals in terms of the percentages of government (28 percent) and nongovernment (72 percent) hospitals.

**Table 3-3. Distribution of Database Hospitals and Respondents by Ownership and Control
(Compared to AHA-registered U.S. Hospitals)**

Ownership and Control	AHA-registered U.S. Hospitals		Database Hospitals		Database Respondents	
	Number	Percent	Number	Percent	Number	Percent
Government (Federal or non-Federal)	1,658	28%	106	28%	12,926	12%
Nongovernment (voluntary/nonprofit or proprietary/investor-owned)	4,350	72%	276	72%	95,695	88%
TOTAL	6,008	100%	382	100%	108,621	100%

Region

Table 3-4 shows the distribution of database hospitals by AHA-defined geographic regions. The largest percentages of database hospitals are from the East North Central region (26 percent) followed by the West North Central region (22 percent). The database distribution under-represents Mid Atlantic/New England and West South Central hospitals, and over-represents the East North Central and West North Central hospitals compared to the distribution of AHA-registered U.S. hospitals.

**Table 3-4. Distribution of Database Hospitals and Respondents by Region
(Compared to AHA-registered U.S. Hospitals)**

Region	AHA-registered U.S. Hospitals		Database Hospitals		Database Respondents	
	Number	Percent	Number	Percent	Number	Percent
Mid Atlantic/New England	870	14%	20	5%	10,796	10%
South Atlantic	932	16%	60	16%	17,870	16%
East North Central	847	14%	100	26%	34,715	32%
East South Central	503	8%	26	7%	6,982	6%
West North Central	774	13%	83	22%	17,418	16%
West South Central	978	16%	31	8%	10,223	9%
Mountain	452	8%	35	9%	5,809	5%
Pacific	652	11%	27	7%	4,808	4%
TOTAL	6,008	100%	382	100%	108,621	100%

NOTE: States are categorized into AHA-defined regions as follows:

Mid Atlantic/New England: NY, NJ, PA, ME, NH, VT, MA, RI, CT

South Atlantic: DE, MD, DC, VA, WV, NC, SC, GA, FL

East North Central: OH, IN, IL, MI, WI

East South Central: KY, TN, AL, MS

West North Central: MN, IA, MO, ND, SD, NE, KS

West South Central: AR, LA, OK, TX

Mountain: MT, ID, WY, CO, NM, AZ, UT, NV

Pacific: WA, OR, CA, AK, HI

Chapter 4. Characteristics of Respondents

This chapter presents information describing the respondents within the participating hospitals. The data presented here are based on respondents' answers to survey questions that asked them to indicate the hospital work area/unit where they spend most of their work time, their staff position, and whether they typically have direct interaction with patients. In the tables presented in this chapter, respondents from hospitals that omitted one of these questions, or those who did not respond, are shown as missing in the tables and are excluded from total percentages.

Highlights

- There are 108,621 hospital staff respondents from 382 hospitals.
- Over one-third of respondents (34 percent) selected “Other” as their work area, followed by “Surgery” (10 percent), “Many different hospital units/No specific unit” (9 percent), and “Medicine” (9 percent).
- Over one-third of respondents (36 percent) selected “Registered Nurse” or “LVN/LPN” as their staff position, followed by “Other” (23 percent), and “Technician (e.g., EKG, Lab, Radiology)” (11 percent).
- Most respondents (76 percent) indicated they had direct interaction with patients.

Respondent Work Area/Unit

Over one-third respondents (34 percent) selected “Other” as their work area, followed by “Surgery” (10 percent), “Many different hospital units/No specific unit” (9 percent), and “Medicine” (9 percent) (see Table 4-1). Because the *Hospital Survey on Patient Safety Culture* uses generic categories for hospital work areas and units, it appears that a large percentage of respondents chose the “Other” response option that allowed them to specify the name of their specific work area or unit. Participating hospitals were not asked to submit written or other-specify responses for any questions so no data are available to further describe the respondents in the “Other” work area category.

Table 4-1. Distribution of Database Respondents by Work Area/Unit

Work Area/Unit	Database Respondents	
	Number	Percent
Other	33,349	34%
Surgery	9,351	10%
Many different hospital units/ No specific unit	8,716	9%
Medicine	8,279	9%
Intensive care unit (any type)	5,992	6%
Radiology	5,600	6%
Emergency	5,168	5%
Laboratory	5,118	5%
Rehabilitation	4,153	4%
Obstetrics	3,880	4%
Pharmacy	2,744	3%
Psychiatry/mental health	2,301	2%
Pediatrics	1,763	2%
Anesthesiology	720	1%
TOTAL	97,134	100%

Missing: Did not answer or were not asked the question 11,487

Overall total 108,621

Respondent Staff Position

Over one-third of respondents (36 percent) selected “Registered Nurse” or “LVN/LPN” as their staff position, followed by “Other” (23 percent), and “Technician (e.g., EKG, Lab, Radiology)” (11 percent) (see Table 4-2). Similar to the work area/unit question, many respondents chose the “Other” response option that allowed them to specify their specific staff position, but no data are available to further describe the respondents in the “Other” staff position category.

Table 4-2. Distribution of Database Respondents by Staff Position

Staff Position	Database Respondents	
	Number	Percent
Registered Nurse (RN) or Licensed Vocational Nurse (LVN)/Licensed Practical Nurse (LPN)	36,991	36%
Other	23,751	23%
Technician (EKG, Lab, Radiology)	10,947	11%
Administration/Management	6,938	7%
Unit Assistant/Clerk/Secretary	6,848	7%
Patient Care Asst/Hospital Aide/ Care Partner	5,904	6%
Therapists (Respiratory, Physical, Occupational or Speech)	4,791	5%
Attending/Staff Physician, Resident Physician/ Physician in Training, or Physician Assistant (PA)/Nurse Practitioner (NP)	4,414	4%
Pharmacist	1,561	2%
Dietician	725	1%
TOTAL	102,870	100%

Missing: Did not answer or were not asked the question 5,751
 Overall total 108,621

Respondent Interaction with Patients

The survey asks respondents whether they typically have direct interaction or contact with patients. As shown in Table 4-3, most respondents (76 percent) indicated “yes,” they had direct interaction with patients.

Table 4-3. Distribution of Database Respondents by Interaction with Patients

Respondent Interaction with Patients	Database Respondents	
	Number	Percent
YES, have direct patient interaction	78,129	76%
NO, do NOT have direct patient interaction	24,603	24%
TOTAL	102,732	100%

Missing: Did not answer or were not asked the question 5,889
 Overall total 108,621

Chapter 5. Overall Results

As noted in the introduction, the *Hospital Survey on Patient Safety Culture* assesses hospital staff opinions about patient safety issues, medical error, and event reporting; the survey consists of 42 items that measure 12 areas or composites of patient safety culture. This chapter presents the overall survey results for the database, showing the average percent of positive response across the database hospitals on each of the survey's items and composites.

Reporting the average across hospitals ensures that each hospital receives an equal weight that contributes to the overall average. Reporting the data at the hospital level in this way is important because culture is considered a group or hospital characteristic and is not considered to be a solely individual characteristic. An alternative method would be to report a straight percent of positive response across all respondents, but this method would give greater weight to respondents from larger hospitals since there are almost twice as many respondents from larger hospitals as those from smaller hospitals (as noted in Chapter 3).

Highlights

- *Teamwork Within Units*—the extent to which staff support one another, treat each other with respect, and work together as a team—was the patient safety culture composite with the highest average percent positive response (78 percent), indicating this is an area of strength for most hospitals.
 - The survey item with the highest average percent positive response (85 percent) was: “When a lot of work needs to be done quickly, we work together as a team to get the work done.”
- *Nonpunitive Response to Error*—the extent to which staff feel that their mistakes and event reports are not held against them, and that mistakes are not kept in their personnel file—was the patient safety culture composite with the lowest average percent positive response (43 percent), indicating this is an area with potential for improvement for most hospitals.
 - The survey item with the lowest average percent positive response (35 percent) was: “Staff worry that mistakes they make are kept in their personnel file,” (an average of only 35 percent strongly disagreed or disagreed with this item).
- On average, the majority of respondents within hospitals (70 percent) gave their work area or unit a grade of “A-Excellent” (22 percent) or “B-Very Good” (48 percent) on patient safety; this was identified as an area of strength for most hospitals.
- On average, the majority of respondents within hospitals (53 percent) had reported no events in their hospital over the past 12 months. It is likely that this represents under-reporting of events and was identified as an area for improvement for most hospitals.

Calculation of Percent Positive Scores

Most of the survey's items ask respondents to answer using 5-point response categories in terms of agreement (Strongly agree, Agree, Neither, Disagree, Strongly disagree) or frequency (Always, Most of the time, Sometimes, Rarely, Never). Three of the 12 patient safety culture composites use the frequency response option (*Feedback and Communication About Error, Communication Openness, and Frequency of Events Reported*) while the other nine composites use the agreement response option.

Item-level Percent Positive Response

Both positively worded items (such as "People support one another in this work area") and negatively worded items (such as "We have patient safety problems in this work area") are included in the survey. Calculating the percent positive response on an item is different for positively and negatively worded items:

- **For positively worded items**, percent positive response is the combined percentage of respondents within a hospital who answered "Strongly agree" or "Agree," or "Always" or "Most of the time," depending on the response categories used for the item.

For example, for the item "People support one another in this work area," if 50 percent of respondents within a hospital "Strongly agree" and 25 percent "Agree," the item-level percent positive response for that hospital would be $50\% + 25\% = 75\%$ positive.

- **For negatively worded items**, percent positive response is the combined percentage of respondents within a hospital who answered "Strongly disagree" or "Disagree," or "Never" or "Rarely," since a *negative* answer on a negatively worded item indicates a *positive* response.

For example, for the item "We have patient safety problems in this work area," if 60 percent of respondents within a hospital "Strongly disagree" and 20 percent "Disagree," the item-level percent positive response for that hospital would be $60\% + 20\% = 80\%$ positive (meaning 80 percent of respondents *do not* believe they have patient safety problems in their work area).

Composite-level Percent Positive Response

The survey's 42 items measure 12 areas or composites of patient safety culture. Each of the 12 patient safety culture composites includes 3 or 4 survey items. Composite scores were calculated for each hospital by averaging the percent positive response on the items within a composite. For example, for a 3-item composite, if the item-level percent positive responses were 50 percent, 55 percent, and 60 percent, the hospital's composite-level percent positive response would be the average of these three percentages or $(50\% + 55\% + 60\%)/3 = 55\%$ positive.³

³Note that this method for calculating composite scores is slightly different than the method described in the September 2004 Survey User's Guide that is part of the original survey toolkit materials on the AHRQ Web site. The guide advises computing composites by calculating the overall percent positive across all the items within a composite. The updated recommendation included in this report is to compute item percent positive scores first, and then average the item percent positive scores to obtain the composite score, which gives equal weight to each item in a composite. The Survey User's Guide will eventually be updated to reflect this slight change in methodology.

Overall Results: Composite and Item-level Charts

Composite-level Results

The composite-level results in Chart 5-1 show the average percent positive response for each of the 12 patient safety culture composites, across all hospitals in the database. By displaying the percent positive as an average across hospitals, each hospital's composite score is weighted equally. The patient safety culture composites are shown in order from the highest average percent positive response to the lowest.

Teamwork Within Units. The extent to which staff support one another, treat each other with respect, and work together as a team was the patient safety culture composite with the highest average percent positive response (78 percent), indicating this to be an area of strength across the database hospitals (see Chart 5-1).

Nonpunitive Response to Error. The extent to which staff feel that event reports, as well as their own mistakes, are not held against them, and that mistakes are not kept in their personnel file was the patient safety culture composite with the lowest average percent positive response (43 percent), indicating this is an area with potential for improvement across the database hospitals (see Chart 5-1).

Item-level Results

The item-level results in Chart 5-2 (over 4 pages) show the average percent positive response for each of the 42 survey items. The survey items are grouped by the patient safety culture composite they are intended to measure. Within each composite, the items are presented in the order in which they appear in the survey. The survey item with the highest average percent positive response (85 percent) was from the patient safety culture composite *Teamwork Within Units*: "When a lot of work needs to be done quickly, we work together as a team to get the work done." The survey item with the lowest average percent positive response (35 percent) was from the patient safety culture composite *Nonpunitive Response to Error*: "Staff worry that mistakes they make are kept in their personnel file," (that is, an average of only 35 percent of respondents in each hospital "Strongly disagreed" or "Disagreed" with this negatively worded item).

Results from the item that asked respondents to give their hospital work area/unit an overall grade on patient safety are shown in Chart 5-3. The chart shows the average percent of respondents within each hospital providing grades from "A-Excellent" to "E-Failing." On average across hospitals, the majority of respondents were positive with (70 percent) giving their work area or unit a patient safety grade of "A-Excellent" (22 percent) or "B-Very Good" (48 percent). Very few (6 percent) gave their work area or unit a "Poor" (5 percent) or "Failing" (1 percent) grade.

Results from the item that asked respondents to indicate the number of events they had reported over the past 12 months are shown in Chart 5-4. The chart shows the average percent of respondents within each hospital who indicated they reported "No event reports" up to "21 or more event reports." On average across hospitals, the majority of respondents (53 percent) reported no events in their hospital over the past 12 months. It is likely that this represents underreporting of events and was identified as an area for improvement for most hospitals because potential patient safety problems may not be recognized or identified and therefore may not be addressed.

Chart 5-1. Composite-level Average Percent Positive Response—Across All Database Hospitals

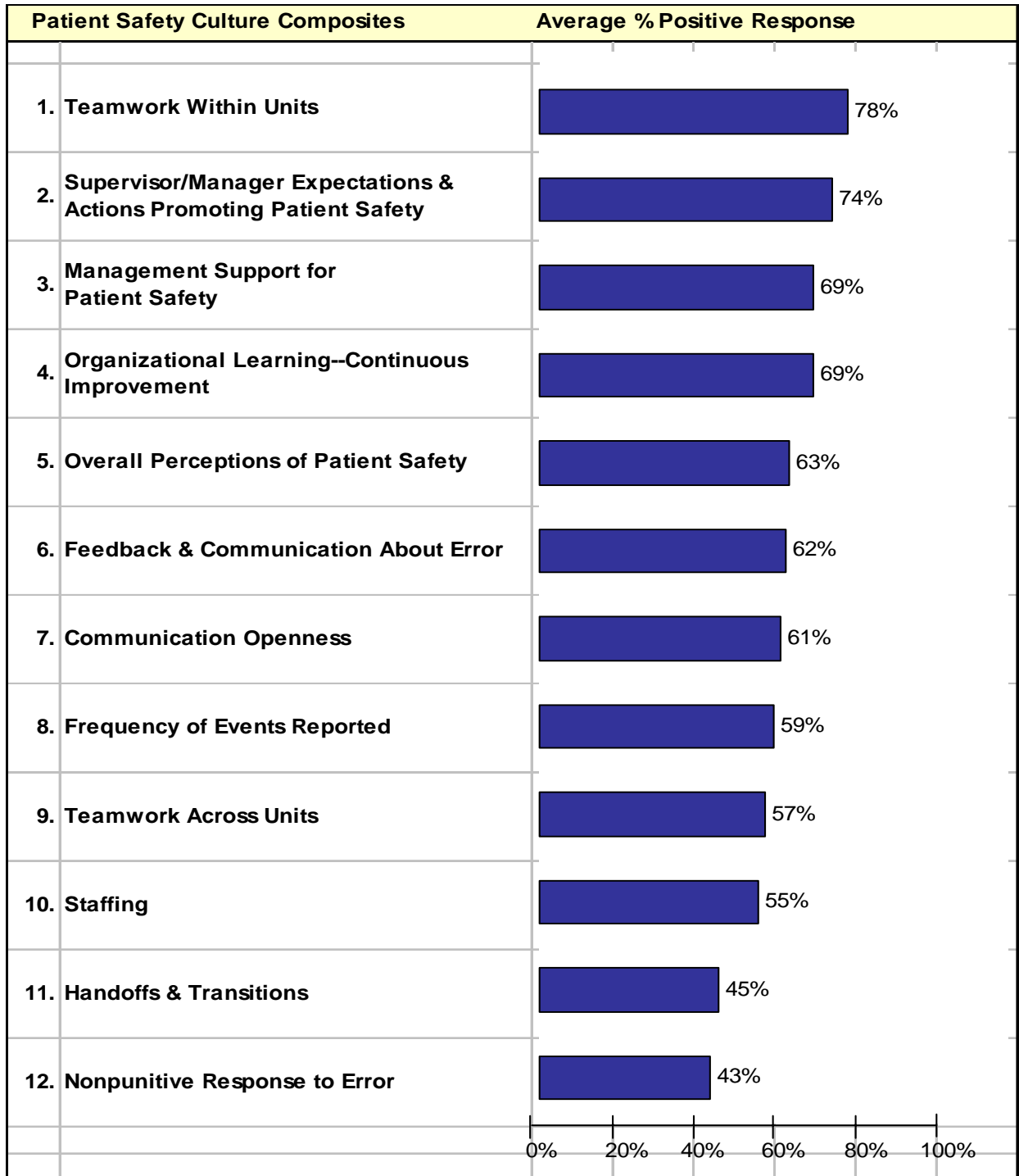
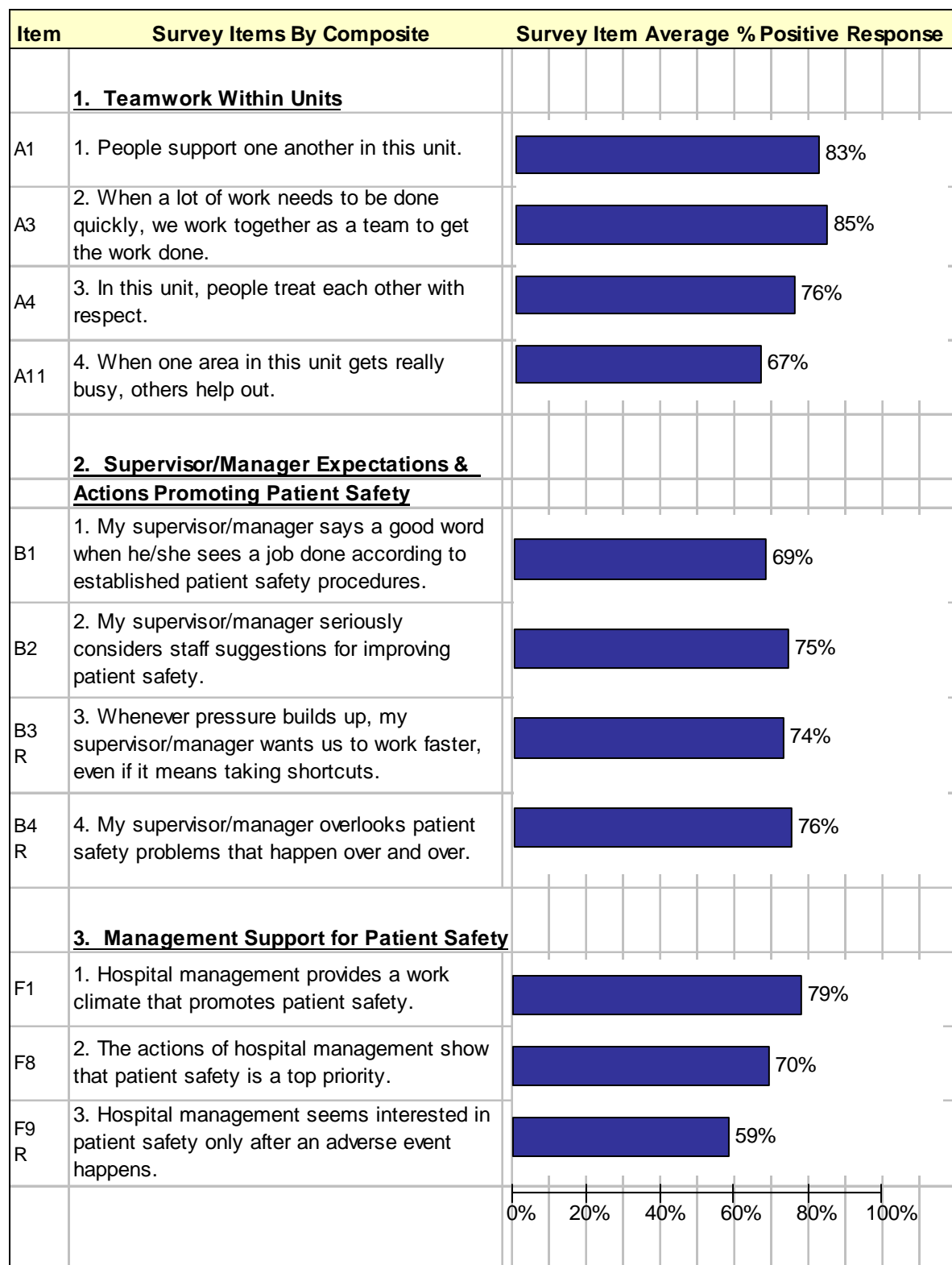
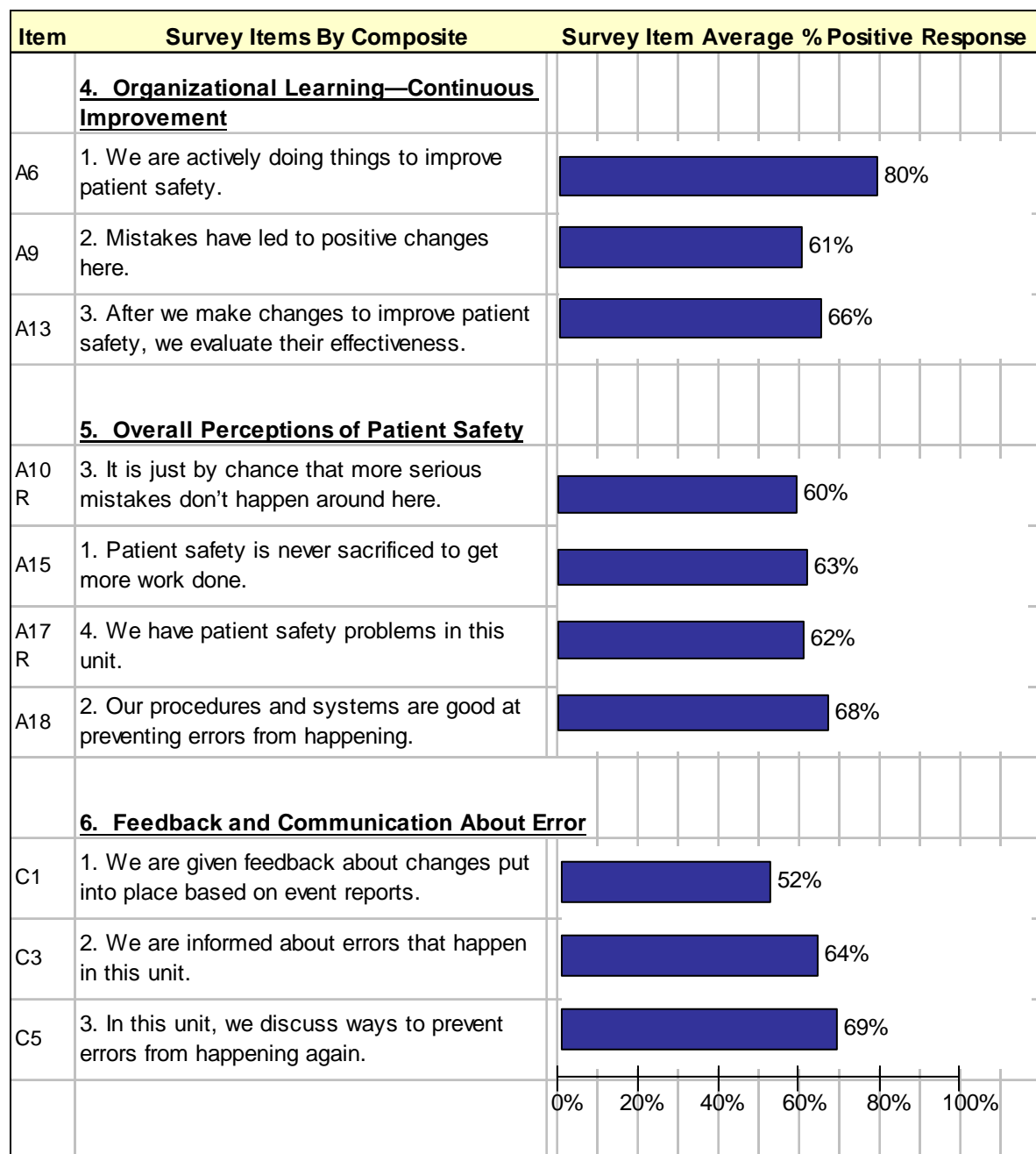


Chart 5-2. Item-level Average Percent Positive Response—Across All Database Hospitals (Page 1 of 4)



Note: The item's survey location is shown to the left. An "R" indicates a negatively worded item, where the percent positive response is based on those who responded "Strongly disagree" or "Disagree," or "Never" or "Rarely" (depending on the response category used for the item).

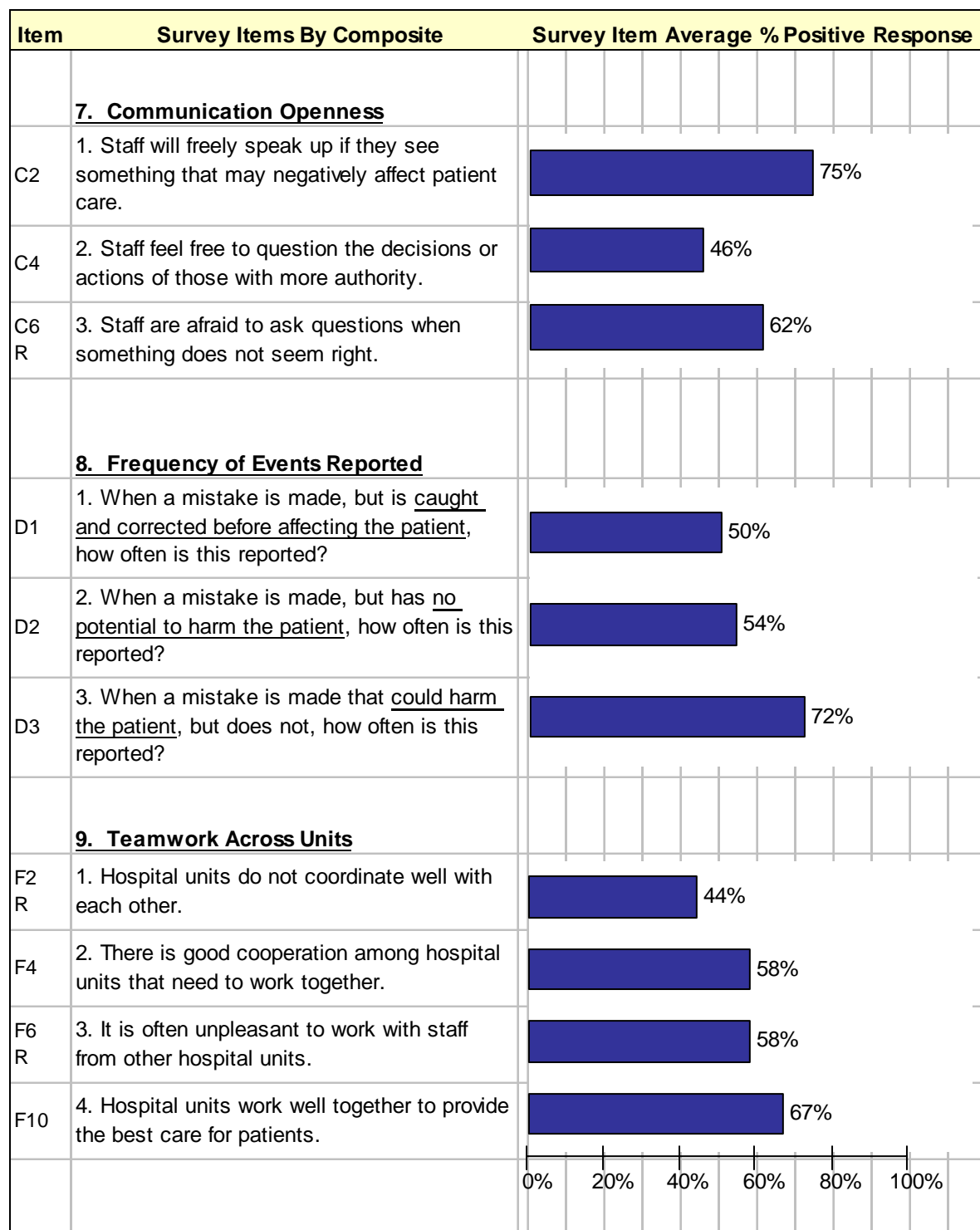
Chart 5-2. Item-level Average Percent Positive Response—Across All Database Hospitals (Page 2 of 4)



Note:

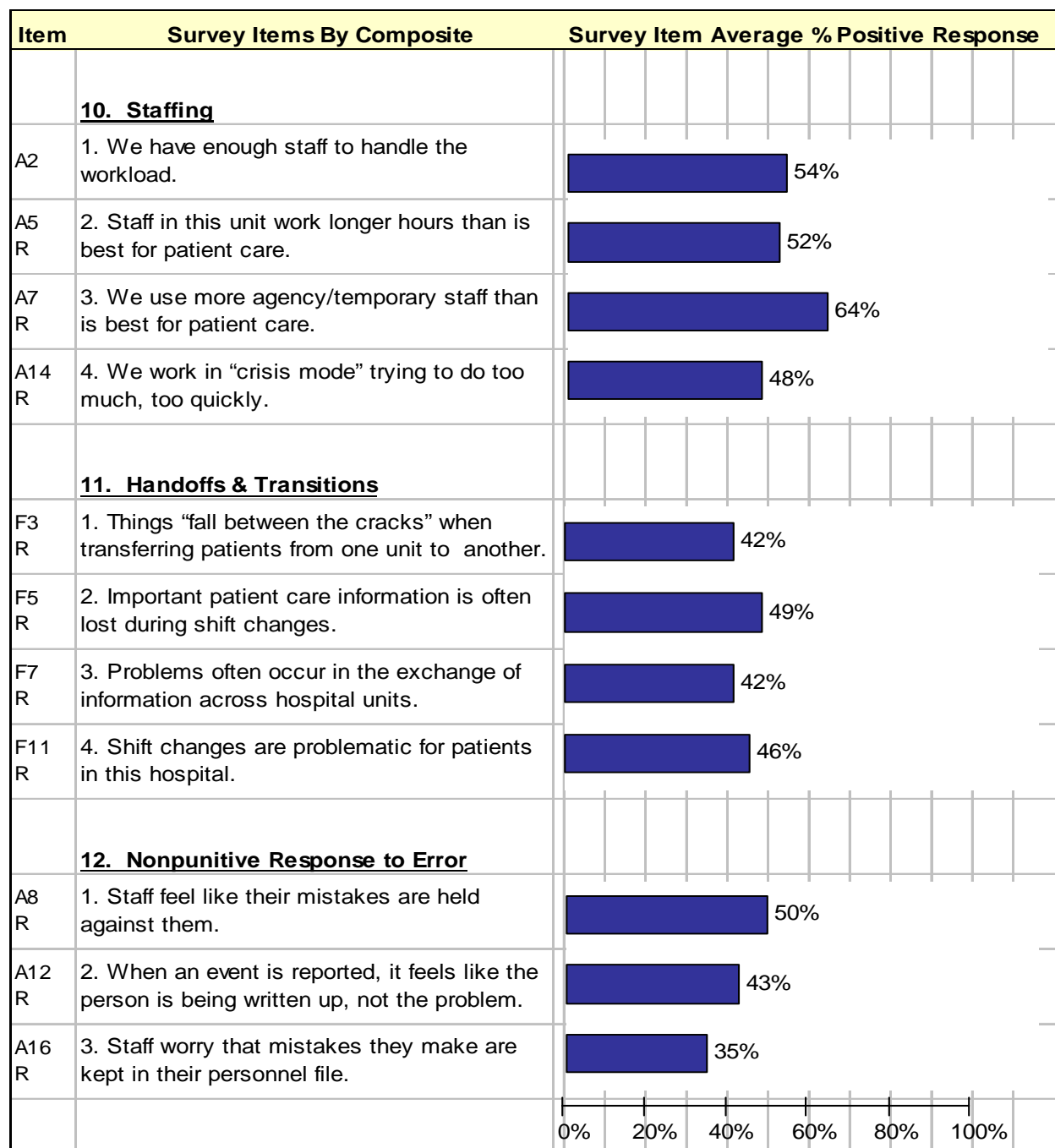
The item's survey location is shown to the left. An "R" indicates a negatively worded item, where the percent positive response is based on those who responded "Strongly disagree" or "Disagree," or "Never" or "Rarely" (depending on the response category used for the item).

Chart 5-2. Item-level Average Percent Positive Response—Across All Database Hospitals (Page 3 of 4)



Note: The item's survey location is shown to the left. An "R" indicates a negatively worded item, where the percent positive response is based on those who responded "Strongly disagree" or "Disagree," or "Never" or "Rarely" (depending on the response category used for the item).

Chart 5-2. Item-level Average Percent Positive Response—Across All Database Hospitals (Page 4 of 4)



Note: The item’s survey location is shown to the left. An “R” indicates a negatively worded item, where the percent positive response is based on those who responded “Strongly disagree” or “Disagree,” or “Never” or “Rarely” (depending on the response category used for the item).

Chart 5-3. Distribution of Work Area/Unit Patient Safety Grades—Averages Across Hospitals

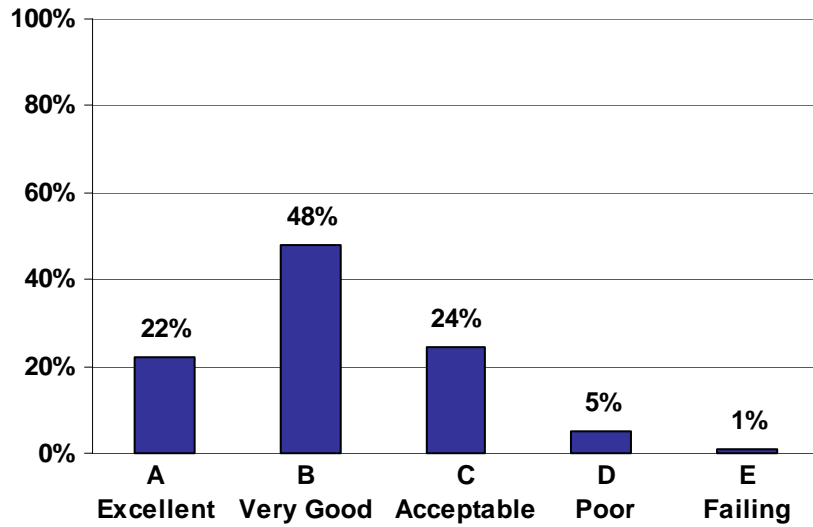
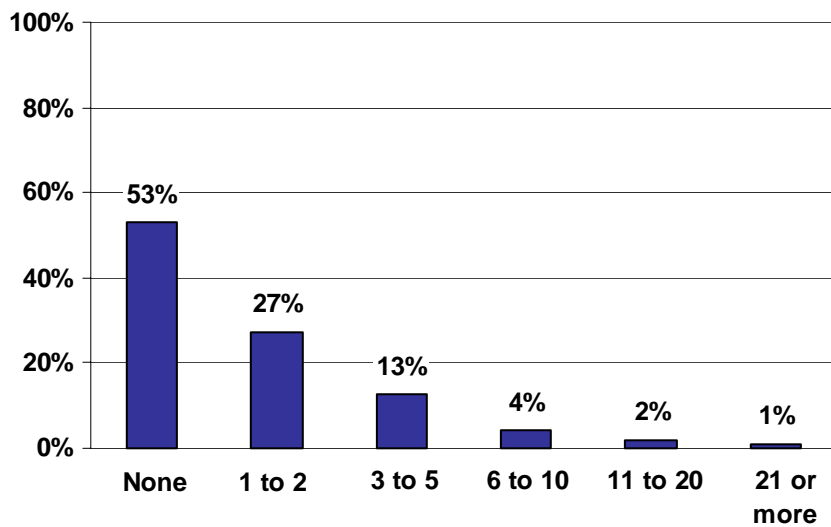


Chart 5-4. Distribution of Numbers of Events Reported in Past 12 Months—Averages Across Hospitals



Chapter 6. Comparing Your Results

To compare your hospital's survey results to the results from the database hospitals, you will need to calculate your hospital's percent positive response on the survey's 42 items and 12 composites (refer to Chapter 5 and the Notes section at the end of this report for a description of how to calculate these percent positive scores). You will then be able to compare your hospital's results against the database averages, and examine the percentile scores to place your hospital's results relative to the distribution of database hospitals.

When comparing your hospital's results against results from the database, keep in mind that the database only provides *relative* comparisons. Even though your hospital's survey results may be better than the database statistics, you may still believe there is room for improvement in a particular area within your hospital in an *absolute* sense. As you will notice from the database results, there are some patient safety composites that even the highest-scoring hospitals could improve upon. Therefore, the comparative data provided in this report should be used to supplement your hospital's own efforts toward identifying areas of strength and areas on which to focus patient safety culture improvement efforts.

Highlights

- When examining differences in percent positive scores across hospitals, there was considerable variability in the range of scores comparing the lowest and highest-scoring hospitals.
 - As an indicator of this variability in scores, the average difference between the percent positive scores of the lowest and highest-scoring hospitals was 69 percent across the 12 patient safety composites, and 76 percent across the 42 survey items.
- There was a wide range of response in patient safety grades, from at least one hospital where none of the respondents (0 percent) provided their unit with a patient safety grade of "A-Excellent," to a hospital where 63 percent did.
- There was also a wide range of response in the number of events reported, from a hospital where 96 percent of respondents had not reported a single event over the past 12 months, to a hospital where only 5 percent had not reported an event.

Description of Comparative Statistics

In addition to the average percent positive scores presented in the charts in the previous chapter (Chapter 5), a number of additional statistics are provided in this report to facilitate comparisons against the database hospitals. A description of each statistic shown in the comparative results tables in this chapter is provided next.

Average Percent Positive and Standard Deviation

The average percent positive scores for each of the 12 patient safety culture composites and for the survey's 42 items are provided in the comparative results tables in this chapter (these statistics were also displayed in the previous chapter in Charts 5-1 and 5-2). These average percent positive scores were calculated by averaging composite-level percent positive scores across all hospitals in the database, as well as averaging item-level percent positive scores across hospitals. Since the percent positive is displayed as an overall average, scores from each hospital are weighted equally in their contribution to the calculation of the average.⁴

In addition, the standard deviation (SD), a measure of the spread or variability of hospital scores around the average, is also displayed. The standard deviation tells you the extent to which hospitals' scores vary from the average:

- If scores from all hospitals were exactly the same, then the average would represent all their scores perfectly and the standard deviation would be zero.
- If scores from all hospitals were very close to the average, then the standard deviation would be small, and close to zero.
- If scores from many hospitals were very different from the average, then the standard deviation would be a large number.

When the distribution of hospital scores follows a normal, bell-shaped curve (where most of the scores fall in the middle of the distribution, with fewer scores at the lower and higher ends of the distribution), the average, plus or minus the standard deviation, will include about 68 percent of all hospital scores. For example, if an average percent positive score across the database hospitals was 70 percent with a standard deviation of 10 percent (and scores were normally distributed), then about 68 percent of all the database hospitals would have scores between 60 percent and 80 percent.

Statistically significant differences between scores. You may be interested in determining the statistical significance of differences between your scores and the averages in the database, or between scores in various breakout categories (differences in scores by hospital bed size, teaching status, etc). Statistical significance is greatly influenced by samples sizes, so that as the number of observations in comparison groups gets larger, small differences in scores will end up being statistically significant. While a 1 percent difference between percent positive scores might be statistically significant (that is, not due to chance), the difference is not likely to be meaningful or significant in practice. Keep in mind that statistically significant differences are not always important, and nonsignificant differences are not always trivial. Therefore, we recommend the following guideline:

- **Use a 5 percent difference as a rule of thumb when comparing your hospital's results to the database averages.** Your hospital's percent positive score should be at least 5 percent higher than the database average to be considered "better," and should be at least 5 percent lower to be considered "lower" than the database average. A 5 percent difference is likely to be statistically significant for most hospitals, given the number of responses per hospital, and is also a meaningful difference to consider.

⁴ As noted in Chapter 5, an alternative method would be to report a straight percent of positive response across all respondents, but this method would give greater weight to respondents from larger hospitals since they account for almost twice as many responses as those from smaller hospitals.

Minimum and Maximum Scores

The minimum (lowest) and maximum (highest) percent positive scores are presented for each composite and item. These scores provide information about the range of percent positive scores obtained by hospitals in the database and are actual scores from the lowest and highest-scoring hospitals. When comparing against the minimum and maximum scores, keep in mind that these scores may represent hospitals that are extreme outliers (indicated by large differences between the minimum and the 10th percentile score, or between the 90th percentile score and the maximum).

Percentiles

The 10th, 25th, 50th (or median), 75th and 90th percentile scores are displayed for the survey composites and items. Percentiles provide information about the distribution of hospital scores. To calculate percentile scores, all hospital percent positive scores were ranked in order from low to high. *A specific percentile score shows the percent of hospitals that scored at or below a particular score.* For example, the 50th percentile, or median, is the percent positive score where 50 percent of the hospitals scored the same or lower, and 50 percent of the hospitals scored higher. When the distribution of hospital scores follows a normal, bell-shaped curve (where most of the scores fall in the middle of the distribution with fewer scores at the lower and higher ends of the distribution), the 50th percentile, or median, will be very similar to the average score. Interpret the percentile scores as shown in Table 6-1.

Table 6-1. Interpretation of Percentile Scores

Percentile Score	Interpretation
10th percentile This score represents the lowest scoring hospitals	10% of the hospitals scored the same or lower 90% of the hospitals scored higher
25th percentile This score represents lower-scoring hospitals	25% of the hospitals scored the same or lower 75% of the hospitals scored higher
50th percentile (or median) This score represents the middle of the distribution of hospitals	50% of the hospitals scored the same or lower 50% of the hospitals scored higher
75th percentile This score represents higher-scoring hospitals	75% of the hospitals scored the same or lower 25% of the hospitals scored higher
90th percentile This score represents the highest scoring hospitals	90% of the hospitals scored the same or lower 10% of the hospitals scored higher

To compare against the database percentiles, compare your hospital's percent positive scores against the percentile scores for each composite and item. Look for the highest percentile where your hospital's score is *higher* than that percentile.

For example: On a survey item, the 75th percentile score is 49 percent positive, and the 90th percentile score is 62 percent positive.

- If your hospital's score on the survey item is 55 percent positive, it falls above the 75th percentile (but below the 90th), meaning that your hospital scored higher than at least 75 percent of the hospitals in the database.

- If your hospital’s score on the survey item is 65 percent positive, it falls above the 90th percentile, meaning your hospital scored higher than at least 90 percent of the hospitals in the database.

Composite and Item-level Comparative Tables

Table 6-2 presents comparative statistics (average percent positive and standard deviation, minimum and maximum scores, and percentiles) for each of the 12 patient safety culture composites. The patient safety culture composites are shown in order from the highest average percent positive response to the lowest.

Table 6-3 (across 4 pages) presents comparative statistics for each of the 42 survey items. The survey items are grouped by the patient safety culture composite they are intended to measure, and within each composite the items are presented in the order in which they appear in the survey.

The comparative results in Tables 6-2 and 6-3 show considerable variability in the range of hospital scores (lowest to highest) across the 12 patient safety culture composites. There was a 69 percent average difference between the percent positive scores of the lowest and highest hospitals for the composites, and a 76 percent average difference for the items. The standard deviation around the average percent positive scores ranged from 6.89 percent to 11.73 percent on the composites, and ranged from 8.42 percent to 14.09 percent on the items.

Patient safety grades shown in Table 6-4 had a wide range of response, from at least one hospital where none of the respondents (0 percent) provided their unit with a patient safety grade of “A-Excellent,” to a hospital where 63 percent did.

Number of events reported also had a wide range of response as shown in Table 6-5, from a hospital where 96 percent of respondents had not reported a single event over the past 12 months, to a hospital where only 5 percent had not reported an event.

Table 6-2. Composite-level Comparative Results

Patient Safety Culture Composites	No. of hospitals & No. of respondents	Average % Positive	SD	Composite % Positive Response						
				Min	10th %ile	25th %ile	Median/ 50th %ile	75th %ile	90th %ile	Max
1. Teamwork Within Units	H = 381 N = 106,307	78%	9.34%	15%	70%	75%	79%	82%	87%	96%
2. Supervisor/Manager Expectations & Actions Promoting Patient Safety	H = 376 N = 105,746	74%	6.89%	45%	66%	70%	74%	79%	83%	97%
3. Management Support for Patient Safety	H = 382 N = 104,938	69%	11.12%	18%	57%	64%	70%	77%	82%	96%
4. Organizational Learning-Continuous Improvement	H = 382 N = 107,404	69%	9.63%	12%	60%	65%	69%	75%	79%	89%
5. Overall Perceptions of Patient Safety	H = 382 N = 107,068	63%	10.02%	17%	52%	58%	63%	69%	75%	86%
6. Feedback & Communication About Error	H = 379 N = 103,567	62%	9.46%	19%	52%	56%	61%	68%	73%	86%
7. Communication Openness	H = 380 N = 105,838	61%	8.35%	20%	53%	57%	61%	66%	70%	98%
8. Frequency of Events Reported	H = 381 N = 93,862	59%	8.90%	22%	49%	54%	59%	64%	69%	84%
9. Teamwork Across Units	H = 381 N = 101,713	57%	11.42%	14%	43%	49%	56%	64%	71%	91%
10. Staffing	H = 380 N = 105,611	55%	10.60%	25%	43%	48%	54%	62%	70%	88%
11. Handoffs & Transitions	H = 382 N = 101,325	45%	11.73%	19%	31%	36%	44%	51%	61%	85%
12. Nonpunitive Response to Error	H = 381 N = 105,034	43%	8.79%	14%	32%	37%	42%	49%	55%	69%

Key: H = hospitals; N = respondents

Table 6-3. Item-level Comparative Results (Page 1 of 4)

Item	Survey Items By Composite	No. of hospitals & No. of respondents	Average % Positive	SD	Survey Item % Positive Response							
					Min	10th %ile	25th %ile	Median/ 50th %ile	75th %ile	90th %ile	Max	
1.	Teamwork Within Units											
A1	1. People support one another in this unit.	H = 381 N = 105,244	83%	10.25%	10%	75%	80%	84%	88%	92%	100%	
A3	2. When a lot of work needs to be done quickly, we work together as a team to get the work done.	H = 381 N = 105,651	85%	10.05%	12%	78%	82%	86%	90%	93%	100%	
A4	3. In this unit, people treat each other with respect.	H = 381 N = 105,564	76%	10.36%	16%	67%	72%	77%	81%	87%	100%	
A11	4. When one area in this unit gets really busy, others help out.	H = 381 N = 103,573	67%	9.87%	23%	57%	62%	68%	73%	78%	90%	
2.	Supervisor/Manager Expectations & Actions Promoting Patient Safety											
B1	1. My supv/mgr says a good word when he/she sees a job done according to established patient safety procedures.	H = 382 N = 104,437	69%	10.36%	18%	59%	65%	70%	76%	81%	97%	
B2	2. My supv/mgr seriously considers staff suggestions for improving patient safety.	H = 382 N = 104,081	75%	10.36%	12%	65%	70%	75%	81%	85%	100%	
B3 R	3. Whenever pressure builds up, my supv/mgr wants us to work faster, even if it means taking shortcuts.	H = 376 N = 102,672	74%	8.42%	43%	64%	68%	74%	80%	85%	100%	
B4 R	4. My supv/mgr overlooks patient safety problems that happen over and over.	H = 382 N = 103,302	76%	9.20%	18%	67%	72%	76%	81%	86%	100%	
3.	Management Support for Patient Safety											
F1	1. Hospital mgmt provides a work climate that promotes patient safety.	H = 382 N = 103,978	79%	11.63%	15%	67%	74%	81%	87%	91%	100%	
F8	2. The actions of hospital mgmt show that patient safety is a top priority.	H = 382 N = 101,563	70%	11.64%	12%	56%	64%	72%	78%	83%	97%	
F9 R	3. Hospital mgmt seems interested in patient safety only after an adverse event happens.	H = 382 N = 100,870	59%	12.13%	18%	44%	51%	59%	66%	74%	93%	

Note: The item's survey location is shown to the left. An "R" indicates a negatively worded item, where the percent positive response is based on those who responded "Strongly disagree" or "Disagree," or "Never" or "Rarely" (depending on the response category used for the item). Key: H = hospitals; N = respondents.

Table 6-3. Item-level Comparative Results (Page 2 of 4)

Item	Survey Items By Composite	No. of hospitals & No. of respondents	Average % Positive	SD	Survey Item % Positive Response						
					Min	10th %ile	25th %ile	Median/ 50th %ile	75th %ile	90th %ile	Max
4.	Organizational Learning— Continuous Improvement										
A6	1. We are actively doing things to improve patient safety.	H = 382 N = 104,927	80%	10.59%	7%	71%	76%	81%	86%	90%	100%
A9	2. Mistakes have led to positive changes here.	H = 382 N = 105,133	61%	9.79%	16%	50%	56%	61%	67%	72%	84%
A13	3. After we make changes to improve patient safety, we evaluate their effectiveness.	H = 382 N = 102,857	66%	11.36%	12%	54%	60%	67%	73%	79%	93%
5.	Overall Perceptions of Patient Safety										
A10 R	1. It is just by chance that more serious mistakes don't happen around here.	H = 382 N = 104,799	60%	11.06%	18%	47%	54%	60%	67%	74%	88%
A15	2. Patient safety is never sacrificed to get more work done.	H = 382 N = 103,082	63%	11.04%	23%	51%	57%	63%	71%	78%	100%
A17 R	3. We have patient safety problems in this unit.	H = 382 N = 103,021	62%	11.99%	15%	47%	55%	62%	69%	76%	91%
A18	4. Our procedures and systems are good at preventing errors from happening.	H = 382 N = 104,838	68%	10.71%	8%	56%	63%	69%	75%	79%	94%
6.	Feedback and Communication About Error										
C1	1. We are given feedback about changes put into place based on event reports.	H = 381 N = 100,884	52%	10.41%	20%	39%	45%	52%	59%	63%	87%
C3	2. We are informed about errors that happen in this unit.	H = 381 N = 101,553	64%	10.73%	21%	53%	59%	63%	71%	77%	100%
C5	3. In this unit, we discuss ways to prevent errors from happening again.	H = 379 N = 102,175	69%	10.59%	13%	58%	64%	70%	75%	81%	100%

Note: The item's survey location is shown to the left. An "R" indicates a negatively worded item, where the percent positive response is based on those who responded "Strongly disagree" or "Disagree," or "Never" or "Rarely" (depending on the response category used for the item). Key: H = hospitals; N = respondents.

Table 6-3. Item-level Comparative Results (Page 3 of 4)

Item	Survey Items By Composite	No. of hospitals & No. of respondents	Average % Positive	SD	Survey Item % Positive Response						
					Min	10th %ile	25th %ile	Median/ 50th %ile	75th %ile	90th %ile	Max
7. Communication Openness											
C2	1. Staff will freely speak up if they see something that may negatively affect patient care.	H = 382 N = 103,775	75%	9.67%	12%	67%	71%	76%	80%	84%	100%
C4	2. Staff feel free to question the decisions or actions of those with more authority.	H = 380 N = 104,265	46%	9.12%	13%	35%	41%	46%	51%	57%	94%
C6 R	3. Staff are afraid to ask questions when something does not seem right.	H = 380 N = 104,578	62%	9.49%	19%	52%	57%	62%	67%	72%	100%
8. Frequency of Events Reported											
D1	1. When a mistake is made, but is <u>caught and corrected before affecting the patient</u> , how often is this reported?	H = 381 N = 93,071	50%	10.07%	18%	38%	44%	50%	57%	62%	82%
D2	2. When a mistake is made, but has <u>no potential to harm the patient</u> , how often is this reported?	H = 381 N = 92,613	54%	9.78%	20%	43%	48%	54%	60%	66%	80%
D3	3. When a mistake is made that <u>could harm the patient</u> , but does not, how often is this reported?	H = 381 N = 92,222	72%	9.45%	28%	63%	68%	73%	78%	83%	100%
9. Teamwork Across Units											
F2 R	1. Hospital units do not coordinate well with each other.	H = 381 N = 99,555	44%	12.74%	5%	29%	35%	43%	52%	61%	91%
F4	2. There is good cooperation among hospital units that need to work together.	H = 381 N = 98,806	58%	12.76%	20%	42%	49%	57%	67%	74%	94%
F6 R	3. It is often unpleasant to work with staff from other hospital units.	H = 381 N = 97,547	58%	10.70%	10%	46%	51%	57%	65%	71%	91%
F10	4. Hospital units work well together to provide the best care for patients.	H = 381 N = 98,003	67%	12.67%	15%	52%	58%	67%	75%	82%	97%

Note: The item's survey location is shown to the left. An "R" indicates a negatively worded item, where the percent positive response is based on those who responded "Strongly disagree" or "Disagree," or "Never" or "Rarely" (depending on the response category used for the item). Key: H = hospitals; N = respondents.

Table 6-3. Item-level Comparative Results (Page 4 of 4)

Item	Survey Items By Composite	No. of hospitals & No. of respondents	Average % Positive	SD	Survey Item % Positive Response						
					Min	10th %ile	25th %ile	Median/ 50th %ile	75th %ile	90th %ile	Max
10. Staffing											
A2	1. We have enough staff to handle the workload.	H = 380 N = 104,847	54%	13.95%	21%	37%	44%	53%	63%	74%	95%
A5 R	2. Staff in this unit work longer hours than is best for patient care.	H = 380 N = 100,634	52%	10.47%	22%	40%	46%	52%	58%	65%	87%
A7 R	3. We use more agency/temporary staff than is best for patient care.	H = 380 N = 97,738	64%	13.45%	4%	48%	57%	65%	73%	80%	100%
A14 R	4. We work in "crisis mode" trying to do too much, too quickly.	H = 380 N = 101,759	48%	12.02%	18%	34%	39%	48%	57%	65%	91%
11. Handoffs & Transitions											
F3 R	1. Things "fall between the cracks" when transferring patients from one unit to another.	H = 382 N = 97,066	42%	14.09%	14%	25%	31%	40%	50%	61%	88%
F5 R	2. Important patient care information is often lost during shift changes.	H = 382 N = 96,148	49%	11.47%	19%	36%	42%	48%	56%	64%	82%
F7 R	3. Problems often occur in the exchange of information across hospital units.	H = 382 N = 97,796	42%	11.69%	11%	28%	33%	40%	48%	58%	84%
F11 R	4. Shift changes are problematic for patients in this hospital.	H = 382 N = 95,725	46%	13.31%	18%	30%	36%	45%	54%	64%	94%
12. Nonpunitive Response to Error											
A8 R	1. Staff feel like their mistakes are held against them.	H = 381 N = 103,763	50%	10.00%	18%	38%	44%	50%	57%	63%	84%
A12 R	2. When an event is reported, it feels like the person is being written up, not the problem.	H = 381 N = 101,788	43%	9.45%	12%	33%	37%	43%	49%	56%	75%
A16 R	3. Staff worry that mistakes they make are kept in their personnel file.	H = 381 N = 101,976	35%	9.42%	12%	24%	28%	33%	41%	48%	67%

Note: The item's survey location is shown to the left. An "R" indicates a negatively worded item, where the percent positive response is based on those who responded "Strongly disagree" or "Disagree," or "Never" or "Rarely" (depending on the response category used for the item). Key: H = hospitals; N = respondents.

Table 6-4. Percent of Respondents Giving Their Work Area/Unit a Patient Safety Grade—Comparative Results

Work Area/Unit Patient Safety Grade	No. of hospitals & No. of respondents	Average %	SD	Percent of Response						
				Min	10th %ile	25th %ile	50th %ile	75th %ile	90th %ile	Max
A Excellent	H = 378 N = 21,431	22%	8.72%	0%	12%	17%	21%	27%	33%	63%
B Very Good	H = 379 N = 45,332	48%	9.83%	0%	39%	44%	49%	54%	58%	80%
C Acceptable	H = 381 N = 24,126	24%	8.85%	4%	14%	19%	24%	29%	35%	60%
D Poor	H = 325 N = 4,874	5%	7.11%	0%	0%	2%	4%	6%	9%	62%
E Failing	H = 186 N = 937	1%	2.05%	0%	0%	0%	0%	1%	2%	20%

Key: H = hospitals; N = respondents

Table 6-5. Percent of Respondents Reporting Events in the Past 12 Months—Comparative Results

Number of Events Reported by Respondents	No. of hospitals & No. of respondents	Average %	SD	Percent of Response						
				Min	10th %ile	25th %ile	50th %ile	75th %ile	90th %ile	Max
No events	H = 381 N = 53,717	53%	11.73%	5%	39%	47%	54%	60%	67%	96%
1 to 2 events	H = 381 N = 26,224	27%	7.58%	2%	20%	23%	27%	31%	36%	63%
3 to 5 events	H = 378 N = 11,298	13%	5.43%	0%	6%	9%	12%	15%	20%	32%
6 to 10 events	H = 347 N = 3,947	4%	3.16%	0%	1%	3%	4%	6%	8%	27%
11 to 20 events	H = 291 N = 1,506	2%	1.75%	0%	0%	0%	1%	2%	4%	11%
21 event reports or more	H = 224 N = 911	1%	1.47%	0%	0%	0%	1%	1%	3%	15%

Key: H = hospitals; N = respondents.

Highlights of Results in Part II—Appendixes A & B: Results by Hospital and Respondent Characteristics

In addition to the overall results on the database hospitals presented in Part I, the report also presents data tables in Part II: Appendixes A and B that show average percent positive scores on the survey composites and items across database hospitals, broken down by the following hospital and respondent characteristics:

- Appendix A: Results by Hospital Characteristics
 - 1-Bed size
 - 2-Teaching status
 - 3-Ownership and control
 - 4-Geographic region

- Appendix B: Results by Respondent Characteristics
 - 1-Work area/unit
 - 2-Staff position
 - 3-Interaction with patients

Since there are many breakout tables, they are included in Part II: Appendixes A and B. Highlights of the findings from the breakout tables in these appendixes are provided on the following pages.

Highlights from *Appendix A:* Results by Hospital Characteristics

Bed Size (Table A-1)

- Smaller hospitals (49 beds or fewer) had the highest average positive response on all 12 patient safety culture composites.
- The largest difference across hospitals by bed size was on *Handoffs & Transitions* where the smallest hospitals (6-24 beds) scored 20 percentage points+ higher than the largest hospitals (400+ beds—56 percent positive compared to 36 percent positive).
- The smallest difference across hospitals by bed size (4 percentage points) was on *Feedback & Communication About Error*; all other composite differences were 5 percentage points or greater.

Teaching Status, and Ownership and Control (Table A-5)

- The largest difference across hospitals based on teaching status was on *Teamwork Across Units*, where nonteaching hospitals were 5 percentage points more positive than teaching hospitals (58 percent positive compared to 53 percent positive).
- Government-owned hospitals were more positive than nongovernment owned hospitals on *Staffing* (6 percentage points more positive), *Handoffs & Transitions* (6 percent more positive), and *Teamwork Across Units* (5 percentage points more positive).

Region (Table A-9)

- East South Central, West North Central, and West South Central hospitals scored highest across the 12 patient safety culture composites; Mid-Atlantic/New England, East North Central, and Pacific hospitals scored lowest.
- The largest difference by region was on *Staffing* where West North Central hospitals were 15 percentage points more positive than Mid Atlantic/New England hospitals (61 percent positive compared to 46 percent positive).

Patient Safety Grade (Tables A-3, A-7, A-11)

- Large hospitals (400+ beds) and hospitals in the Mountain region scored lowest on the percent of respondents who gave their work area/unit a patient safety grade of “Excellent” or “Very good” (64 percent for 400+ beds in Table A-3 and 60 percent for the Mountain region in Table A-11).
- There were no noticeable differences on patient safety grade based on teaching status or ownership and control (all differences were 4 percentage points or less).

Number of Events Reported (Tables A-4, A-8, A-12)

- There were no noticeable differences on number of events reported based on bed size, teaching status or ownership and control (all differences were 2 percentage points or less).
- Hospitals in the Pacific region had the highest percent of respondents who had reported one or more events in the past year (54 percent); the lowest percent of respondents reporting events was 42 percent in the East South Central and West South Central regions.

Highlights from *Appendix B:* Results by Respondent Characteristics

Respondent Work Area/Unit (Table B-1)

- Respondents in *Rehabilitation* had the highest average positive response on 9 of the 12 patient safety culture composites.
- The largest differences (23 percent) by work area/unit were on *Overall Perceptions of Patient Safety* (*Rehabilitation* was 76 percent positive; *Medicine* was 53 percent positive) and *Nonpunitive Response to Error* (*Rehabilitation* was 59 percent positive; *Emergency* was 36 percent positive).

Respondent Staff Position (Table B-5)

- Respondents in *Administration/Management* had the highest average positive response on 11 of the 12 patient safety culture composites.
- The largest difference (27 percent) by staff position was on *Nonpunitive Response to Error*; *Administration/Management* was 60 percent positive and *Patient Care Assistants Aides/Care Partners* were 33 percent positive.

Respondent Interaction With Patients (Table B-9)

- Respondents *with* direct patient interaction were 8 percent more positive on *Handoffs & Transitions* compared to those *without* direct patient interaction (46 percent positive compared to 38 percent positive).
- Respondents *without* direct patient interaction were 7 percent more positive about *Management Support for Patient Safety* than those *with* direct patient interaction (75 percent positive compared to 68 percent positive).
- All other composite differences were 4 percent or less.

Patient Safety Grade (Tables B-3, B-7, B-11)

- *Rehabilitation* had the highest percent of respondents who gave their work area/unit a patient safety grade of “Excellent” or “Very good” (81 percent); *Medicine* had the lowest percent (58 percent).
- *Administration/Management* had the highest percent of respondents who gave their work area/unit a patient safety grade of “Excellent” or “Very good” (79 percent); *Registered Nurse/LVN/LPN* had the lowest percent (64 percent).
- There were no noticeable differences in patient safety grade based on respondent interaction with patients (differences were 2 percent or less).

Number of Events Reported (Tables B-4, B-8, B-12)

- *ICU (any type)* had the highest percent of respondents reporting one or more events in the past year (69 percent); the lowest percent reporting was *Anesthesiology* (41 percent).
- *Pharmacists* had the highest percent of respondents reporting one or more events in the past year (76 percent); the lowest percent reporting were *Unit Assistants/Clerks/ Secretaries* (21 percent).
- More respondents *with* direct patient interaction reported one or more events in the past year (52 percent) compared to those *without* direct patient interaction (32 percent).

Chapter 7. What's Next? Action Planning for Improvement

After the initial release of the *Hospital Survey on Patient Safety Culture* in November of 2004, AHRQ held a series of national conference calls to provide technical assistance and guidance to hospitals interested in administering the survey. The seven steps of action planning outlined in this chapter are primarily based on the third conference call presentation by an organizational psychologist (Church, 2005; available on the AHRQ Web site at (<http://www.ahrq.gov/qual/hospculture>), and based on the book “Designing and Using Organizational Surveys: A Seven-Step Process” (Church & Waclawski, 1998).

Highlights

- The delivery of survey results is not the *end point* in the survey process, it is just the *beginning*.
- It is often the case that the perceived failure of surveys to create lasting change is actually due to faulty or nonexistent action planning or survey follow-up.
- Seven steps of action planning are provided to give hospitals guidance on next steps to take to turn their survey results into actual patient safety culture improvement.

Seven Steps of Action Planning

While administering the *Hospital Survey on Patient Safety Culture* can be considered an “intervention” in and of itself—a means of educating hospital staff and building awareness about issues of concern related to patient safety—this should not be the only goal of conducting the survey. Administering the survey is not enough. Keep in mind that the delivery of survey results is not the end point in the survey process; it is actually just the beginning. It is often the case that the perceived failure of surveys as a means for creating lasting change is actually due to faulty or nonexistent action planning or survey follow-up. Seven steps of action planning are provided to help your hospital go beyond simply conducting a survey to realizing patient safety culture change.

Step No.1: Understand Your Survey Results

It is important to review the survey results and interpret them before you develop action plans. Develop an understanding of your hospital’s key strengths and areas for improvement. Examine your hospital’s overall percent positive scores on the patient safety culture composites and items:

- Which areas were most and least positive?
- How do your hospital’s results compare to the results from the database hospitals?
Next, consider examining your survey data broken down by work area/unit or staff position.
- Are there different areas for improvement for different hospital units?

- Are there different areas for improvement for different hospital staff?
- Do any patterns emerge?
- How do your hospital's results for these breakouts compare to the results from the database hospitals?

After reviewing the survey results carefully, identify two to three areas for improvement at the hospital level. While your hospital may want to improve in almost all areas, it is better to avoid focusing on too many issues at one time.

Step No. 2: Communicate and Discuss the Survey Results

Common complaints among survey respondents are that they never get any feedback about survey results and have no idea whether anything ever happens as a result of a survey. It is therefore important to thank your staff for taking the time to complete the survey and let them know that you value their input. Sharing results from the survey throughout the hospital shows your commitment to the survey and improvement process.

Use survey feedback as an impetus for change. Feedback can be provided at the hospital level and/or at the department or unit level. However, to ensure respondent anonymity/ confidentiality, it is important to only report data if there are enough respondents in a particular category or group. One common rule-of-thumb recommends not reporting data if there are fewer than 10 respondents in a category. For example, if there are only four respondents from a department, that department's data should not be reported separately because there are too few respondents to provide complete assurance of anonymity/confidentiality.

Summaries of the survey results should be distributed throughout the hospital in a top-down manner—beginning with senior management, administrators, medical and senior leaders, and committees, followed by department or unit managers, and then staff. Managers at all levels should be expected to carefully review the findings. Summarize key findings, but also encourage discussion about the results throughout the hospital. What do others see in the data and how do they interpret the results?

In some cases, it may not be completely clear why an area of patient safety culture scored particularly low. Keep in mind that surveys are only one way of examining culture, so strive for a deeper understanding when needed, by conducting follow-up activities, such as focus groups or interviews with staff, to find out more about an issue, why it is problematic, and how it can be improved.

Step No. 3: Develop Focused Action Plans

Once areas for patient safety culture improvement have been identified, formal, written action plans need to be developed to ensure progress toward change. Hospital-wide and department or unit-based action plans can be developed. Major goals can be established as hospital-wide action plans. Unit-specific goals can be fostered by encouraging and empowering staff to develop action plans at the unit level.

Encourage action plans that are “SMART”:

- Specific
- Measurable

- Achievable
- Relevant
- Time-bound

Identify funding or other resources needed to implement action plans. It is also important to identify quantitative and qualitative measures that can be used to evaluate progress and the impact of changes implemented.

Step No. 4: Communicate Action Plans and Deliverables

Once action plans have been developed, the plans, deliverables and expected outcomes of the plans need to be communicated. Those directly involved or affected will need to know their roles, responsibilities, and the time frame for implementation. Action plans and goals should also be shared widely so that their transparency encourages further accountability and demonstrates the hospital-wide commitments being made in response to the survey results.

At this step it is important for senior hospital managers and leaders to understand that they are the primary owners of the change process and that success depends on their full commitment and support. Senior-level commitment to taking action must be strong; without buy-in from the top, including medical leadership, improvement efforts are likely to fail.

Step No. 5: Implement Action Plans

Implementing action plans is one of the hardest steps. Taking action requires the provision of necessary resources and support. It requires tracking quantitative and qualitative measures of progress and success that have already been identified. It requires publicly recognizing those individuals and units that take action to drive improvement. And it requires adjustments along the way.

This step is critical to realizing patient safety culture improvement. While communicating the survey results is important, taking action makes the real difference. However, as the Institute for Healthcare Improvement (IHI, 2006) suggests, actions do not have to be major, permanent changes that are enacted. In fact, it is worthwhile to strive to implement easier, smaller changes that are likely to have a positive impact rather than big changes with unknown probability of success.

The “Plan-Do-Study-Act” cycle (Langley et al, 1996) is a pilot-study approach to change that involves first developing a small-scale plan to test a proposed change (Plan), carrying out the plan (Do), observing and learning from the consequences (Study), and determining what modifications should be made to the plan (Act). Implementation of action plans can occur on a small scale, within a single unit, to examine impact and refine plans before rolling out the changes on a larger scale to other units or hospitals.

Step No. 6: Track Progress and Evaluate Impact

Use quantitative and qualitative measures to review progress and evaluate whether a specific change actually leads to improvement. Ensure that there is timely communication of progress toward action plans on a regular basis. If you determine that a change has worked, communicate that success

to staff by telling them what was changed, and that it was done in response to the safety culture survey results. Be sure to make the connection to the survey so that the next time the survey is administered, staff will know that it will be worthwhile to participate again because actions were taken based on the prior survey's results. Alternatively, your evaluation may discover that a change is not working as expected or has failed to reach its goals and will need to be modified or replaced by another approach. Before dropping the effort completely, try to determine why it failed and whether adjustments might be worth trying.

Keep in mind that it is important not to reassess culture too frequently because lasting culture change will be slow and may take years. Frequent assessments of culture are likely to find temporary shifts or improvements that may come back down to baseline levels in the longer term if changes are not sustained. When planning to reassess culture, it is also very important to obtain high survey response rates. Otherwise, it will not be clear whether changes in survey results over time are due to true changes in attitudes, or due to the fact that you may be surveying different staff each time.

Step No. 7: Share What Works

In step six, you tracked measures to be able to identify which changes result in improvement. Once your hospital has found effective ways to address a particular area, the changes can be implemented on a broader scale to other departments within the hospital and to other hospitals. Be sure to share your successes with outside hospitals and health care systems as well.

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Notes: Description of Data Cleaning and Calculations

This notes section provides additional detail regarding how various statistics presented in this report were calculated.

Data Cleaning

Each participating hospital was asked to submit cleaned, individual-level survey data. However, as an additional check, once the data were submitted, response frequencies were run on each hospital's data to look for out-of-range values, missing variables, or other data anomalies. For instances in which data problems were found, hospitals were contacted, asked to make corrections and resubmit their data. In addition, each participating hospital was sent a copy of their data frequencies as an additional way for the hospitals to verify that the dataset received was correct.

Response Rates

As part of the data submission process, hospitals were asked to provide their response rate numerator and denominator. Response rates were calculated using the formula below.

$$\frac{\text{Number of complete, returned surveys}}{\text{Number of surveys distributed} - \text{Ineligibles}}$$

Numerator = Number of complete, returned surveys. The numerator equals the number of individual survey records submitted to the database. It should *exclude* surveys that were returned blank on all nondemographic survey items, but *include* surveys where at least one nondemographic survey item was answered.

Denominator = The total number of surveys distributed minus ineligibles. Ineligibles include deceased individuals or those who were not employed at the hospital during data collection.

As a data cleaning step, we examined whether any individual survey records submitted to the database were missing responses on all of the nondemographic survey items (indicating the respondent did not answer any of the main survey questions). Records where all nondemographic survey items were missing were found (even though these blank records should not have been submitted to the database). We therefore removed these blank records from the larger dataset and adjusted any affected hospital's response rate numerator and overall response rate accordingly.

Item and Composite Percent Positive Scores

To calculate your hospital's composite score, simply average the percent of positive response on each item that is in the composite. Here is an example of computing a composite score for Overall Perceptions of Patient Safety:

1. There are four items in this composite—two are positively worded (items A15 and A18) and two are negatively worded items A10 and A17). Keep in mind that DISAGREEING with a negatively worded item indicates a POSITIVE response.
2. Calculate the percent of positive response at the item level (see example in Table 1).

Table 1. Example of Computing Item and Composite Percent Positive Scores

Four items measuring "Overall Perceptions of Patient Safety"	For positively worded items, count the number of "Strongly agree" or "Agree" responses	For negatively worded items, count the number of "Strongly disagree" or "Disagree" responses	Total number of responses to the item	Percent positive response on item
Item A15-positively worded "Patient safety is never sacrificed to get more work done"	120	NA*	260	120/260=46%
Item A18-positively worded "Our procedures and systems are good at preventing errors from happening"	130	NA*	250	130/250=52%
Item A10-negatively worded "It is just by chance that more serious mistakes don't happen around here"	NA*	110	240	110/240=46%
Item A17-negatively worded "We have patient safety problems in this unit"	NA*	140	250	140/250= 56%
* NA = Not applicable	Composite Score % Positive = (46% + 52% + 46% + 56%) / 4 = 50%			

In this example, there were 4 items with percent positive response scores of 46 percent, 52 percent, 46 percent, and 56 percent. Averaging these item-level percent positive scores results in a composite score of .50 or 50 percent on Overall Perceptions of Patient Safety. In this example, an average of about 50 percent of the respondents responded positively on the survey items in this composite.

Once you have calculated your hospital's percent positive response on each of the 12 safety culture composites, you can compare your results with the composite-level results from the 382 database hospitals.

Note that the method described above for calculating composite scores is slightly different than the method described in the September 2004 Survey User's Guide that is part of the original survey toolkit materials on the AHRQ Web site. The Guide advises computing composites by calculating the overall percent positive across all the items within a composite. The updated recommendation included in this report is to compute item percent positive scores first, and then average the item percent positive scores to obtain the composite score, which gives equal weight to each item in a composite. The Survey User's Guide will eventually be updated to reflect this slight change in methodology.

Percentiles

Percentiles were computed using the SAS default method. The first step in this procedure is to rank order the percent positive scores from all the participating hospitals, from lowest to highest. The next step is to multiply the number of hospitals (n) by the percentile of interest (p), which in our case would be the 10th, 25th, 50th, 75th or 90th percentile.

For example, to calculate the 10th percentile, one would multiply 382 (the total number of hospitals) by .10 (10th percentile). The product of n x p is equal to "j+g" where "j" is the integer and "g" is the number after the decimal. If "g" equals 0, the percentile is equal to the percent positive value of the hospital in the jth position plus the percent positive value of the hospital in the jth +1 position, all divided

by two $[(X_{(j)} + X_{(j+1)})/2]$. If “g” is not equal to 0, the percentile is equal to the percent positive value of the hospital in the $j^{\text{th}} + 1$ position.

The following examples show how the 10th and 50th percentiles would be computed using a sample of percent positive scores from 12 hospitals (using fake data shown in Table 2). First, the percent positive scores are sorted from low to high on Composite “A.”

Table 2. Data Table for Example of How to Compute Percentiles

Hospital	Composite “A” % Positive Score
1	33%
2	48%
3	52%
4	60%
5	63%
6	64%
7	66%
8	70%
9	72%
10	75%
11	75%
12	78%

←10th percentile score = 48%

←50th percentile score = 65%

10th percentile

1. For the 10th percentile, we would first multiply the number of hospitals by .10 ($n \times p = 12 \times .10 = 1.2$).
2. The product of $n \times p = 1.2$, where “j” = 1 and “g” = 2. Since “g” is not equal to 0, the 10th percentile score is equal to the percent positive value of the hospital in the $j^{\text{th}} + 1$ position:
 - a. “j” equals 1
 - b. The 10th percentile equals the value for the hospital in the 2nd position = 48 percent

50th Percentile

1. For the 50th percentile, we would first multiply the number of hospitals by .50 ($n \times p = 12 \times .50 = 6.0$).
2. The product of $n \times p = 6.0$, where “j” = 6 and “g” = 0. Since “g” = 0, the 50th percentile score is equal to the percent positive value of the hospital in the j^{th} position plus the percent positive value of the hospital in the $j^{\text{th}} + 1$ position, all divided by two:
 - a. “j” equals 6
 - b. The 50th percentile equals the average of the hospitals in the 6th and 7th position $(64\% + 66\%) / 2 = 65$

